

CLAIMS

1. A method of retraining a trainable data classifier comprising the steps of:

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providing a first item of training data;

comparing the first item of training data with a second item of training data already used to train the data classifier;

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calculating a measure of conflict between the first and second items of training data;

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using the first item of training data to retrain the data classifier responsive to the measure of conflict.

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2. A method according to claim 1 wherein the step of using the first item of training data is responsive to a predetermined conflict threshold value.

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3. A method according to claim 2 wherein the threshold value is non-zero.

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4. A method according to claim 1 wherein the measure of conflict comprises a geometric difference between the first and second items of training data.

5. A method according to claim 4 wherein the geometric difference comprises a Euclidean distance.

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6. A method according to claim 1 wherein the measure of conflict comprises an association coefficient of the first and second items of training data.

7. A method according to claim 6 wherein the association coefficient is a Jaccard's coefficient.

5 8. A method according to claim 7 wherein the measure of conflict is derived from a both a Euclidean distance between and a Jaccard's coefficient of the first and second items of training data.

10 9. A method according to claim 8 wherein the measure of conflict is derived from a Euclidean distance and a Jaccard's coefficient composed in an exponential relationship with respect to each other.

15 10. A method according to claim 8 wherein the measure of conflict is derived from a function of a Euclidean distance multiplied by an exponent of a function of the Jaccard's coefficient.

20 11. A method according to claim 1 wherein the data classifier comprises a neural network.

25 12. A method according to claim 1 wherein the training data comprises telecommunications network data.

30 13. A method according to claim 1 wherein the training data comprises telecommunications call detail record data.

14. A method of training a trainable data classifier comprising the steps of:

35 providing a plurality of items of training data;

comparing a first of the items of training

data with a second of the items of training data;

5 calculating a measure of conflict between the first and second items of training data;

10 using one of the first and second items of training data to retrain the data classifier responsive to the measure of conflict.

15 15. A apparatus for retraining a trainable data classifier and comprising:

15 an input port for receiving a first item of training data;

20 a comparator arranged to compare the first item of training data with a second item of training data already used to train the data classifier;

25 a calculator for calculating a measure of conflict between the first and second items of training data; and

an output port arranged to output the first item of training data to the data classifier responsive to the measure of conflict.

30 16. A anomaly detection system comprising apparatus according to claim 15.

35 17. A telecommunications data anomaly detection system comprising apparatus according to claim 15.

18. A telecommunications fraud detection

system comprising apparatus according to claim 15.

19. An account fraud detection system comprising apparatus according to claim 15.

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20. An apparatus for retraining a trainable data classifier comprising:

10 an input port for receiving a plurality of items of training data;

a comparator arranged to compare a first of the items of training data with a second of the items of training data;

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a calculator for calculating a measure of conflict between the first and second items of training data;

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an output port arranged to output the first item of training data to the data classifier responsive to the measure of conflict.

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21. A program for a computer on a machine readable medium arranged to perform the steps of:

receiving a first item of training data;

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comparing the first item of training data with a second item of training data already used to train the data classifier;

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calculating a measure of conflict between the first and second items of training data;

using the first item of training data to retrain the data classifier responsive to the

measure of conflict.

22. A program for a computer on a machine readable medium arranged to perform the steps of:

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receiving a plurality of items of training data;

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comparing a first of the items of training data with a second of the items of training data;

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calculating a measure of conflict between the first and second items of training data; and

using one of the first and second items of training data to retrain the data classifier responsive to the measure of conflict.